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Soft locality restrictions in negative concord: Evidence from the French future polarity effect

Yiming Liang[1] · **Pascal Amsili**[2] · **Heather Burnett**[3]

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Abstract
This paper provides new evidence that syntactic principles that are proposed to explain the (un)grammaticality of a sentence can also hold in sociolinguistic variation. In particular, we argue that two puzzling frequency patterns involving negation in French—the *proximity effect* on negative concord and the *polarity effect* on future temporal reference—are deeply related and are both derived from the sensitivity of syntactic agreement to "soft" locality constraints. Recent quantitative studies of future temporal reference reveal that, although all negative items are subject to the polarity effect in Laurentian French, *pas* does not give rise to the polarity effect in Parisian French. We argue that this dialectal difference can be explained by minor variations in the syntactic and semantic properties of the negative marker *pas*, given an appropriate analysis of the syntax of negative concord. Our paper therefore shows that incorporating sociolinguistic variation into syntactic theory helps refine our understanding of general syntactic principles, such as locality constraints, and argues that frequency/preference patterns should be included in the full theory of syntactic competence and performance of speakers.

Keywords Negative concord · Future temporal reference · Locality constraint · Polarity effect · Proximity effect · Quantitative syntax · French · Probabilistic linguistics

1 Introduction

This paper presents a new argument related to studying patterns of sociolinguistic variation can make a valuable contribution to formal syntactic theory. In the past 20

✉ Y. Liang
yiming.liang@ugent.be

1 Department of Linguistics, Universiteit Gent, Ghent, Belgium

2 Sorbonne Nouvelle, Laboratoire Lattice (CNRS/PSL-ENS/SN), Paris, France

3 Université Paris Cité, CNRS, Laboratoire de linguistique formelle, Paris, France

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years, research linking theoretical syntax and quantitative variation has grown significantly. One strand explores how quantitative variation could be incorporated into syntactic models, and in doing so, uses the data from intra-speaker variation to refine or elaborate them (Adger and Smith 2010; Adger 2014; Thoms et al. 2019, among many others). Another strand documents how contrasts in grammaticality or acceptability (called *hard* contrasts) in one language often appear as qualitative or quantitative preferences (called *soft* contrasts, to be described below) in another (Bresnan et al. 2001; Bresnan 2007; Rosenbach 2002; Hawkins 2004; Thullier 2012; Tagliamonte 2008; Burnett et al. 2015, 2018, among many others). Researchers working in this area suggest that these patterns of grammaticality/acceptability and frequency/preference have a common source, and explore how the parallelism can be accounted for intra- or extra-grammatically.

This paper pursues a line of research that is a hybrid of these two approaches: we develop an argument that abstract syntactic principles that hold at the grammaticality (i.e., hard) level in some languages or contexts, can also hold at the frequency (i.e., soft) level in other languages or contexts, albeit with slightly different shapes. In particular, we argue that negative concord constructions in a language can be subject to licensing constraints at the preferential level, which are not active at the grammaticality level in that language; we also show how this proposal can help to understand two puzzling phenomena involving negation in Laurentien French, the variety of French spoken predominantly in Quebec and parts of Ontario: the *polarity effect* on future temporal reference (FTR) and the *proximity effect* on negative concord (NC). In all varieties of French, future events may be expressed using a synthetic future (SF) like (1a) or a periphrastic future (PF) like (1b). The alternation between these two forms is known as the future temporal reference variable. The polarity effect on FTR—where the SF like (2a) 'Je verrai rien' is strongly preferred over its PF counterpart (2b) 'Je vais rien voir' in negative contexts, whereas PF is preferred over SF in affirmative contexts (cf. Sect. 3 for a detailed description)—has been observed in many studies of tense variation in Canadian French (Poplack and Turpin 1999; Poplack and Dion 2009; Wagner and Sankoff 2011; Blondeau 2006, among others). Despite this attention, no consensus about its source has emerged in the literature; thus, it has become somewhat of a longstanding puzzle in the field of French variation and change.

(1) a. Je la verrai. [synthetic future]
b. Je vais la voir. [periphrastic future]
'I will see her.'

(2) a. Je verrai rien. [synthetic future]
b. Je vais rien voir. [periphrastic future]
'I will see nothing.'

Negative concord refers to the phenomenon where multiple negative expressions jointly convey a single negation reading. Much previous work has shown that concord reading is strongly preferred over double negation (DN) reading in most sentences containing two NC items (*negative concord items*) in both Metropolitan and Laurentian varieties, as illustrated in (3), and French is viewed as a negative concord language (Corblin and Tovena 2003; Corblin et al. 2004; Déprez 2000, 1997). The

negative marker *pas* also participates in negative concord with NC items, in particular in Laurentian varieties, and therefore the presence of *pas* in a negative sentence with an NC item, as shown in (1), is subject to variation in Laurentian French. Quantitative variationist studies have been done to determine which factors favor the presence of *pas* when the sentence contains an NC item (e.g., Burnett et al. 2015; Daoust-Blais 1975; Lemieux 1985). Among these factors, the proximity effect, where *pas* appears more frequently when the postverbal NC item is situated further from the finite verb, as we will describe in Sect. 4, has been observed by Burnett et al. (2015) and Burnett (2016). However, the theoretical explanation for the patterns these authors observe is limited. Most importantly, both of these phenomena have been treated as independent aspects of Laurentian French variable syntax, which is understandable given that there had previously been no empirical reason to link them together. However, a recent series of extensive quantitative studies on future temporal reference in another dialect of French, Parisian French, has revealed a slightly different pattern of the polarity effect (Liang et al. 2024), one that makes its connection with negative concord much clearer than in the Canadian variety. Based on these similarities revealed by corpus studies of these two phenomena, we propose a new analysis of the polarity effect, in which it arises as the result of locality restrictions on negative concord that hold at the preferential level. We analyze the differences between the polarity effect in Parisian and Laurentien French as resulting from independently observed differences in the syntactic properties of the negative marker *pas* between the two dialects (Daoust-Blais 1975; Lemieux 1985; DiSciullo and Tremblay 1996; Déprez 2002; Labelle and Espinal 2014; Larrivée 2014). Our paper therefore provides new evidence that incorporating patterns of usage, in addition to patterns of grammaticality, is crucial for developing more complete formal theories of locality, negation, and concord.

(3) Metropolitan French and Laurentian French:
Personne a vu *personne*.
NC favored: 'No one saw anyone.'

(4) Laurentian French:
Jean a (pas) vu *personne*.
'Jean didn't see anyone.'

The paper is organized as follows: In Sect. 2, we present one classic example showing the contrast between "soft" and "hard" constraints cross-linguistically, the study of Bresnan et al. (2001), also one of the follow-up studies, which provides empirical evidence for "soft" constraints related to negation. We also discuss how "soft" constraints can be embedded under the parametric view, resonating with Adger (2006). In Sect. 3, we present French future temporal reference variation, and introduce the pattern that is the topic of this paper: the polarity effect. We then detail the results obtained by two recent corpus studies of FTR in Parisian French, which reveal that the polarity effect has a slightly different shape in Paris than what had been observed in Québec and Ontario. In particular, whereas all negative elements (including the negative marker *pas*) are subject to the polarity effect in Laurentian French, the constraint appears to be active especially with negative quantifiers in Paris, those

that are often called *NC items* in the literature: *personne* 'no/any-one,' *rien* 'no/any-thing,' *jamais* '(n)ever,' etc. We argue that this new result strongly suggests that the polarity effect is driven by aspects of the syntax or semantics of these NC items, and how they might differ between dialects. In Sect. 4, we describe another way in which negation and NC items have been shown to differ between Laurentian and Parisian Frenches. Similar to the polarity effect, whereas *pas* participates in negative concord in the Canadian dialect, it is far rarer the case in Metropolitan dialect, where its co-occurrence with NC items is more likely to receive a double negation interpretation, rather than a concord reading for (5) (Corblin and Tovena 2003; Corblin et al. 2004).[1] We then present one thorough quantitative investigation of negative concord in Laurentian French (Burnett et al. 2015), which shows that syntactic proximity is the strongest predictor of negative concord variable with *pas*. Then, in Sect. 5, we start by presenting Zeijlstra and colleagues' agreement-based analysis of negative concord. Subsequently, based on this framework, we provide a formal analysis of the proximity effect on negative concord, showing how the polarity effect, and its dialectal variants, falls out from our analysis. We further propose that the dialectal difference in the polarity effect on future temporal reference is due to a different syntactic status of *pas* in Laurentian and Parisian varieties. Section 6 concludes with some general remarks about the nature of syntactic constraints and how quantitative studies of sociolinguistic variation can help us study them.

(5) Jean a *pas* vu *personne*.
Laurentian French: NC favored: 'Jean didn't see anyone.'
Parisian French: DN favored: 'Jean didn't see no one.'

2 Soft and hard constraints

Formal syntactic theory and quantitative variation have historically been treated as distinct in terms of research inquiries and methodologies. Formal syntax seeks to describe the mental knowledge of the language (linguistic *competence*) in terms of a series of grammatical rules or constraints (Chomsky 1965). Language use, which involves the use of linguistic competence to accomplish linguistic tasks (*performance*) is affected by various factors, in particular the speaker's limited cognitive resources, and is subject to errors in production and comprehension. Therefore, it has long been argued that the study of natural corpora belongs to the study of performance, which should be separated from the study of the internal knowledge of the language, and therefore is not the purpose of syntactic theories (Newmeyer 1990). Furthermore, linguistic data from corpora can never be exhaustive, as people can pronounce an infinite number of sentences based on a finite number of grammatical rules; as Chomsky states: "it is obvious that the set of grammatical sentences cannot be identified with any corpus of utterances obtained by the linguist in his field work" (Chomsky 1957, p. 15). Therefore, most of the researchers following Chomsky rely on the linguist's

[1] Although negation in standard written French is expressed by a pre-verbal *ne* and a negative word, this particle is practically extinct in the dialects that we are studying (Sankoff and Vincent 1977; Ashby 1981; Gadet 2007).

inspection of the language, trying to derive rules that govern whether a sentence is grammatical (i.e., well-formed) or not.

In contrast, quantitative variation is focused on the frequency patterns among acceptable sentences and investigates factors that condition the choice between semantically interchangeable variants. It heavily relies on linguistic data from corpora and statistical tools. Traditionally, these two approaches, formal and quantitative variation, operated independently, addressing distinct questions and methodologies throughout the 20th century.

This being said, during the past two decades, an increasing line of research has started to link sociolinguistic variation to formal syntax. Notably, one strand of research argues that categorical grammatical constraints and frequentistic preferences could have a common source, and therefore quantitative patterns from linguistic variation can shed valuable insights into the refinement of syntactic theories. More specifically, it has been shown that contrasts in grammaticality in one language often appear as quantitative preferences in another (Bresnan et al. 2001; Bresnan 2007; Rosenbach 2002; Hawkins 2004; Thullier 2012; Tagliamonte 2008; Burnett et al. 2015, 2018, among others). In the remaining of the section, we will mainly focus on two examples: one involves the interaction between person hierarchy and passive/active alternation in Lummi and English, and the other involves negative quantifier raising in Germanic languages.

2.1 Person hierarchy in Lummi and English

One of the most influential studies in this area is by Bresnan et al. (2001) on the interaction between person hierarchy and passive/active alternation in Lummi and English. The person hierarchy, which posits that first and second persons must precede third person, is a constraint that cannot be violated in Lummi, a First Nations language spoken in Western Canada. If the agent is first or second person and the patient is third person, the active voice must be used, as shown by (6a). If it is third person acting on the first or second person, it is ungrammatical to produce the word order "The man knows me/you" in Lummi as in (6b). Instead, the sentence has to be turned to passive voice, and the word order becomes "I am/you are known by the man" to not violate person hierarchy, as shown in (6c):

(6) Lummi:

a. ẋ̌či-t=sən/=sx^{w} cə swəy*ʔ*qəʔ
know-TR=1.sg.nom/=2.sg.nom the man
'I/you know the man.' [1,2 > 3]

b. *_____ 'The man knows me/you.' [* 3 > 1,2]

c. ẋ̌či-t-ŋ=sən/=sx^{w} ə cə swəyʔqəʔ
know-TR-PASS=1.SG.NOM/=2.SG.NOM by the man
'I am/you are known by the man' (Bresnan et al. 2001, p. 1) [1,2 > 3]

In English, person hierarchy constraint can be violated, as both word orders are grammatical. However, it turns out that person hierarchy does condition the passive/active alternation in English in terms of frequency: through a quantitative study

of the passive/active alternation in the large *switchboard* spoken corpus of English, Bresnan and colleagues find that, compared to the rate of passivization for inputs of third persons acting on third persons (1.2%), the rate of passive voice for first or second person acting on third person is significantly lower (0%),[2] whereas the rate of passive voice for third person acting on first or second person is significantly higher (2.9%). This shows that the person hierarchy constraint also plays a role in the passive/active alternation in English, but in a "soft" way (Bresnan et al. 2001, p. 13) as a statistical preference, rather than determining the categorical grammaticality as the case in Lummi. In this literature, constraints that primarily impact the frequency patterns of linguistic phenomena are called "soft" constraints, as opposed to "hard" constraints that determine the grammaticality of sentences. The same syntactic constraint, like the person hierarchy constraint, can be inviolable (i.e., "hard") in one language, but be violable (i.e., "soft") in other languages. In this vein, both soft and hard constraints share the same type of constraints underlying syntactic patterns in languages, differing only in their placement along "the continuum of conventionalization that links usage-based frequentistic preferences to categorical grammatical constraints" (Bresnan et al. 2001, p. 8), varying across languages. Integrating linguistic variation into syntactic studies can unveil the expansion of a grammatical categorical constraint in certain languages to account for frequency patterns in diverse phenomena and languages, thereby elucidating the universal and gradient properties of grammars across languages.

One may wonder whether soft constraints stem from the grammar or the performance, given that they only influence frequency patterns. Though researchers may hold differing viewpoints, we join Bresnan et al. (2001), Bresnan and Aissen (2002), Dingare (2001), Givon (1979) and others by proposing that those are integral parts of the mental grammar, i.e., linguistic competence. Bresnan et al. (2001) demonstrate how the stochastic *optimality theory* (OT) framework can account for soft constraints and preference patterns. In standard OT, constraints are ranked on a discrete ordinal scale within a certain language and do not allow variable outputs of the same input. However, in stochastic OT, constraints are ranked on a continuous scale and apart with a specific distance. At each evaluation, a random value slightly disturbs the position of each constraint. Therefore, if two constraints are close to each other on the scale, their order could get flipped upon some evaluations, giving rise to variable outputs. If A and B are soft constraints within a language, like the passive-avoidance constraint, call it $*S_{pt}$, and the third-person-being-subject-avoidance constraint *S3 in English. Although $*S_{pt}$ initially dominates $*S_3$, since they are situated close to each other, $*S_3$ may dominate $*S_{pt}$ on some valuations, which results in an infrequent output of passive voice with third-person-agent like "I am known by the man." The latter expression is much more frequent than passive voice with first-person-agent like "The man is known by me," given that first-person-being-subject-avoidance constraint $*S_1$ is dominated by $*S_{pt}$ by a larger distance.

[2] Although such sentences are not attested in the corpus, a passive sentence with a first or second person acting on a third person, such as "The window is broken by me," remains grammatical. Therefore, this reflects a preferential/frequency pattern, where a soft constraint is at play, rather than a categorical/grammatical/hard constraint.

Although stochastic OT offers a way to integrate soft constraints into theoretical framework, how soft constraints can be integrated into other syntactic theories is less worked out. One idea is that soft constraints can be viewed as a part of the framework *principles and parameters* (henceforth P&P) (Chomsky 1981). In this vein, human languages are governed by a common set of grammatical principles, but vary from one another due to distinct parameter settings. Take the example of the interaction between person and voice in Lummi and English detailed above. The person hierarchy constraint is a requirement in Lummi, where third persons must not precede the first or second persons (e.g., the equivalent of "The man knows me" is ungrammatical in Lummi). In English, however, the third-person argument can precede the first or second argument, as "The man knows me" is grammatical. Therefore, we can suppose that in P&P, the parameter governing the person hierarchy constraint is "on" in Lummi but "off" in English.[3] Nonetheless, as Bresnan et al. (2001) show, although the passive voice is used at a very low rate in general, it is used significantly more frequently to reorder arguments, allowing first or second person arguments to precede third person arguments, compared with situations where argument order adheres to the person hierarchy in the active voice. Based on these facts, the parameter governing person hierarchy constraint is not completely "off" in English and can be turned "on" in some cases. Therefore, we propose that soft constraints can be viewed as probabilistic restrictions, which can be activated or deactivated with a certain probability. When they are activated, speakers will produce sentences that do not violate the constraint, whereas in case of non-activation, other factors may take precedence and influence speakers to opt for an alternative variant. The probability of a constraint's activation varies across languages, explaining why contrasts in grammaticality in one language may appear as quantitative preferences in another, as seen with the person hierarchy in Lummi and English. At one extreme, a constraint activated 100% of the time functions as a hard constraint, like person hierarchy constraint in Lummi, while at the other extreme, if never activated, it has no influence in that language. When the activation probability falls between 0% and 100%, a statistical preference may be attested in that language, as the case of person hierarchy in English. Soft constraints can also be implemented without necessarily supposing that aspects of the grammar are probabilistic, as in Kroch (1989)'s *competing grammars* approach or Adger (2006)'s Minimalist *combinatory variability* system. Because, in the end, our analyses of French dialectal data will be compatible with all the multiple ways of formalizing a soft constraint described above, we will not commit to a particular implementation. Readers should feel free to read our proposals within their favorite (probabilistic or non-probabilistic) grammatical framework that can capture the difference between grammaticality and preferential grammatical contrasts.

The fact that categorical phenomena in certain languages can be mirrored by frequentistic phenomena in others is not restricted to Lummi and English, and has already been shown in a handful of research, involving the *was*/*were* alternation in a Scottish dialect (Adger 2006), the variation between negative quantifier and NPI in English (Burnett et al. 2018), argument ordering in French (Thullier 2012), among

[3] As far as we know, such a constraint does not really exist in P&P, but here it is used as an illustration of the idea how the P&P framework can code a constraint that is hard in one language but soft in other languages.

others. Since the two core phenomena of this paper are related to negation, let us take a look at an example of the contrast between hard and soft constraints in negative quantifier raising within Germanic languages.

2.2 Negative quantifier raising in Germanic languages

In Scandinavian languages, negative quantifiers must overtly raise out of the VP (Christensen 1986). More specifically, in some theories (for example Kayne 1998), negative quantifiers must raise to the Spec of NegP, as shown in (7). If the negative quantifier cannot be raised out of VP, like in Norwegian (8a), a negative polarity item (NPI) must be used instead, as shown in (8b), since NPIs are not subject to this constraint.

(7) a. Icelandic:
*Jon hefur lesið *engar baekur*.
'Jon has read no books' (Rögnvaldsson 1987, p. 31)

b. Danish:
*Jeg har laest *ingen bøger*.
'I have read no books.'

c. Icelandic:
Ég hef *engan* séð.
'I have nobody seen' (Rögnvaldsson 1987, p. 37)

d. Formal/Literary Norwegian:
Han har *ingen penger* fått.
'He has no money received.'

(8) Norwegian:

a. *Jon har lest *ingen romaner*. [*negative quantifier]
Intended: 'Jon has read no novels.'

b. Jon har *ikke* lest *noen romaner*. [NPI]
'Jon hasn't read any novels.'

In English, the overt raising of negative quantifiers out of VP appears not to be a requirement, as (9a) and (9b) are both grammatical. However, as argued by Kayne (1998), there is some evidence that negative raising also applies to English, because a negative quantifier that stays postverbally is less acceptable in certain cases like (9c), as opposed to (9d). Furthermore, Burnett et al. (2018)'s investigation of the alternation between negative quantifiers and negative polarity items (NPIs) in the *Toronto English Archive* corpus (Tagliamonte 2010) reveals that the syntactic position of the negative indefinite, more specifically the contrast between higher than VP and lower than VP, plays a significant role in conditioning this alternation: when the negative indefinite occupies a position higher than VP, as exemplified by (10a), the use of an NPI is clearly disfavored. On the other hand, when the negative indefinite is situated lower than VP, as in (10b), NPIs are overwhelmingly favored over negative quantifiers. This shows that English speakers are sensitive to the negative quantifier raising soft constraint, opting for a variant that avoids its violation. Hence, the hard negative quantifier raising constraint in Scandinavian languages is again reflected in the

preference patterns observed in the variation between negative quantifiers and NPIs in English, illustrating how the study of variation can provide insight into universals of syntactic constraints, and accordingly, how syntactic constraints can explain the mechanism behind grammatical effects in variation.

(9) a. John reads no books.
b. John has read no books.
c. ?*John became no Einstein. (Kayne 1998, p. 132)
d. John is/was no Einstein. (Kayne 1998, p. 132)

(10) a. Higher than VP:
i. There [$_{TP}$ is nothing new.] [negative indefinite]
ii. There [$_{TP}$ isn't anything new.] [NPI]
b. Lower than VP:
i. John has [$_{VP}$ read no novels.] [negative indefinite]
ii. John hasn't [$_{VP}$ read any novels.] [NPI]

In summary, we have seen that the categorical grammatical pattern in one language can be reflected as a statistical preference in other languages, varying from crosslinguistic word order variation to negation. We have shown that the proposal of the contrast between "soft" and "hard" constraints offers a novel perspective for understanding intra- and inter-personal morpho-syntactic variation within a broader framework linking grammaticality to preferences across languages. We have also discussed the possibility of incorporating this contrast into the mental grammar under a parametric view. Specifically, we propose that soft constraints can be viewed as probabilistic restrictions within the P&P framework, which may be activated or deactivated with varying probabilities across languages. At one extreme, a constraint activated 100% of the time functions as a hard constraint in that language, whereas at the other extreme, if never activated, it has no impact on that language. When a soft constraint is activated, speakers are more likely to produce sentences that conform to it. On the other hand, in cases of non-activation, other factors may influence speakers to choose an alternative variant. Now let us move to the first frequency pattern of this paper, the polarity effect on future temporal reference.

3 The polarity effect on FTR

In all French varieties spoken around the world, speakers have two competing forms to express a future event, namely the periphrastic future (composed of *aller* 'go' and infinitive, as in (11a)) and the synthetic future (see (11b)).[4]

(11) a. Luc va gagner. [periphrastic future or futur proche]
b. Luc gagnera. [synthetic future or futur simple]
'Luc will win.'

[4] Another form, namely the futurate present, is identical to the present tense and can also be used to refer to the future. We excluded this variant from the present study following Roberts (2012).

Although these two forms are often presented as having slightly different temporal meanings, grammarians and linguists often disagree on what precisely those meanings are, or even whether or not meaning differences actually exist (see Poplack and Dion 2009, for a comprehensive study). For this reason, the variationist tradition usually analyzes the synthetic and periphrastic futures as being in competition, and this variation is known as *future temporal reference* (FTR). FTR has generated a rich line of sociolinguistic variationist research on French varieties from both sides of the Atlantic, and, as with most cases of sociolinguistic variation, researchers have observed that the use of an utterance like (11a) vs (11b) is conditioned by a wide variety of factors, including social factors (particularly speakers' age and socio-professional status) (Wagner and Sankoff 2011), subject type (Blondeau and Labeau 2016), contingency (Wagner and Sankoff 2011), among others. Though those factors exhibit variability among different studies on the same French variety, two factors have been extensively discussed: *temporal distance* between speech time and the future event, and *sentential polarity*. More specifically, these two factors are shown to appear in nearly complementary distribution across varieties. In Acadian French (spoken in the Maritime provinces of Canada) (King and Nadasdi 2003; Comeau et al. 2016) and French from the Vimeu region in the North of France (Villeneuve and Comeau 2016), the periphrastic future form tends to be associated with proximal events, and the synthetic future form with distal contexts. Sentential polarity plays a slight or no role. In contrast, in Laurentian French and Metropolitan French (except Vimeu French), in which temporal distance is not an important conditioning factor, i.e., varieties in which (11a) and (11b) are (more or less) synonymous. However, *sentential polarity* has been frequently shown to be a strong predictor of variant choice across corpora: the synthetic future form is strongly preferred to the periphrastic future in negative sentences (12b) > (12a), whereas the periphrastic future is preferred in affirmative sentences (11a) > (11b). This pattern is known as the *polarity effect*.

(12) a. Luc va pas gagner. [periphrastic future]
b. Luc gagnera pas. [synthetic future]
'Luc will not win.'

The polarity effect is very robust in Laurentian French, with the synthetic future being used in over 97% of negative utterances in the corpora from Ottawa-Hull, historical Québec, and Montréal (Wagner and Sankoff 2011; Poplack and Dion 2009). It has also been observed in some Metropolitan varieties (Fleury and Branca-Rosoff 2010; Roberts 2012; Gudmestad et al. 2018; Tristram 2020), but the preference for the synthetic future under negation is generally much weaker than in the Laurentian varieties. Despite the robustness of the patterns observed in Laurentian and Metropolitan (except Vimeu) varieties, a consensus on a satisfactory explanation that accounts for the mechanisms motivating the polarity effect on future variation remains unclear. Additionally, the association between the synthetic future and negative contexts appears to be a unique characteristic of French: Bybee's investigation of the GRAMCATS sample of 67 languages (Bybee, Perkins & Pagliuca 1994, cited in Poplack and Dion (2009)) reveals no link between future variation and negative contexts. In other Romance languages, either future variation is unattested, or the polarity effect goes in an opposite direction, with negative contexts being associated with PF and the choice

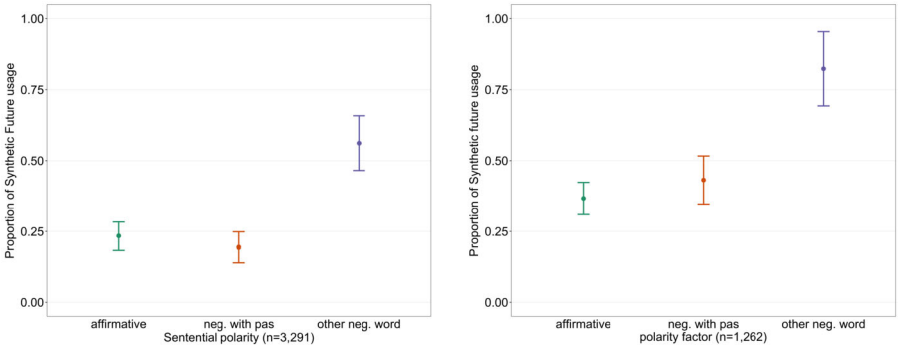

Fig. 1 Proportion of synthetic future use across affirmative, *pas*, and other negative word (i.e., NC item) contexts in the MPF corpus (left) and the CFPP2000 corpus (right), aggregated by speaker (Liang et al. 2024)

of a future form being largely determined by semantic differences, as is the case of Peninsular Spanish (Arroyo 2008). These complexities highlight the challenges in explaining the polarity effect on future variation in French.

Additionally, recent studies by Liang et al. (2024) of FTR in two corpora of spoken Parisian French reveal a slightly different pattern of the polarity effect on FTR. Importantly, to better understand why the polarity effect appears weaker in France, they separate negative contexts into negation with the negative marker *pas*, and negation with other negative words (e.g., *personne*, *rien*, *jamais*, etc.), that is, negative quantifiers also known as NC items. Other factors that have been discussed in the literature, varying from social to cognitive factors, are also coded and included in the mixed-effect model. The results reveal that sentential polarity is also a significant factor in conditioning the variation between the synthetic future and periphrastic future in both corpora. However, whereas negative contexts with NC items exhibit a strong and statistically significant preference for synthetic future compared with negative contexts with *pas* ($p < 0.01$), the contrast between *pas* and affirmatives remains far weaker. In the first corpus, the *Multicultural Paris French* (MPF) corpus (Gadet and Guerin 2016; Gadet 2017), negative contexts with *pas* do not differ at all ($p = 0.32$) from affirmative contexts in the rate of synthetic future. In the second corpus, the Corpus de Français Parlé Parisien dans les années 2000 (CFPP2000) (Branca-Rosoff et al. 2012), *pas* marginally favors the use of synthetic future compared with affirmative contexts ($p = 0.04$). These contrasts in both corpora are shown in Fig. 1.

The patterns in Fig. 1 reveal new insight into the polarity effect. Previous work in Laurentian French did not differentiate between negative contexts with *pas* and NC items, but given that SF is used more than 97% of the time in negative contexts and that *pas* is the default negative marker, there are grounds to claim that *pas* largely contributes to the association of SF with negative contexts. However, the contrast between *pas* and NC items is clear in Parisian French, with *pas* showing virtually no difference with affirmative contexts, at least in the MPF corpus. This may explain why previous research has found a less strong association between synthetic future and negation in Metropolitan French. Given that *pas* only marginally significantly favor synthetic future compared with affirmative contexts only in the CFPP2000 corpus,

whereas the contrast between *pas* and other negative words is clear in both corpora, in the following sections, we will mainly discuss why NC items favor synthetic future compared with *pas* and NC items when talking about Parisian French.

Previous attempts to explain the polarity effect have focused on the nuances between the two future forms, arguing for an association between the synthetic future and negative contexts in terms of hypotheticality (Deshaies and Laforge 1981; Jeanjean 1988; Laurendeau 2000; Wagner and Sankoff 2011), or the rarity of announcing the absence of an event at the preparatory phrase via periphrastic future (Vet, p.c., cited from Poplack and Turpin 1999); however, none of these explanations have formed consensus in the literature (see Poplack and Dion 2009, for a synthesis). Furthermore, they cannot capture a system like the Parisian French one, in which NC items, rather than *pas*, strongly favors the synthetic future. For instance, if negative contexts favor synthetic future due to their hypothetical nature, it seems puzzling why the polarity effect is restricted to NC items, rather than applying to all negative contexts. Likewise, given the high rate of periphrastic future in negative contexts with *pas* in both corpora (79% in MPF and 54.7% in CFPP2000), the periphrastic future is frequently used to signal the absence of an event in Parisian French, which clearly contradicts Vet's explanation.

In fact, the distinct behaviors of NC items and *pas* in Paris strongly suggest that the polarity effect arises from the syntax of these elements, or at least from how they behave at the syntax-semantics interface. There is independent evidence from negative concord constructions that *pas* and NC items have different syntactic or semantic properties in Parisian French. In Parisian French, multiple NC items in a single utterance can be interpreted as a single negation, i.e., *Personne a rien vu* can be interpreted as 'No one saw anything.' However, the combination of *pas* and an NC item nearly always categorically results in a double negation meaning (Milner 1978), i.e., *J'ai pas rien vu* is more naturally interpreted as 'I didn't see nothing.' Strikingly, in Laurentian French, in the same way that *pas* and NC items pattern together in FTR, they also pattern together in negative concord: *J'ai pas rien vu* is most naturally interpreted as 'I didn't see anything' (Lemieux 1985; Burnett et al. 2015). Although it is possible that this is a strange coincidence, we believe it is more likely that the dialectal differences in negative concord and FTR are related. We therefore propose that whatever difference in the syntactic or semantic properties of *pas* between Parisian and Laurentian French allows it to participate in negative concord in the latter dialect is also what allows it to create the polarity effect on FTR. Therefore, before developing our own analysis to explain the polarity effect on FTR, it is crucial to revisit the phenomenon of *negative concord* (NC), where *pas* behaves differently in Laurentian and Parisian varieties.

4 The proximity effect on NC

At its most basic, negative concord (NC) is a construction in which several grammatical elements that have a negative interpretation by themselves yield a single negation interpretation when they appear with other negative elements. As mentioned in the introduction and the previous section, both Laurentian French and spoken Parisian

French allow negative concord with NC items (what is sometimes called *negative spread* (Den Besten 1986)). In both dialects, NC items like *personne* as in (13a) and *rien* as in (13b) can contribute a negation to an utterance that they appear in; however, when they appear together, as shown in (13c), a single negation reading is highly favored. The accessibility of DN reading is subject to various factors, including the morpho-syntax of the NP, the information structure, the prosody, among others (Déprez et al. 2015; Larrivée 2016; Corblin et al. 2004). However, in natural corpora, it remains rare and requires specific contexts involving denial or contradiction (Larrivée 2016) (see Déprez and Yeaton (2022) for an experimental investigation of the distribution of negative concord and double negation readings in French).

(13) Laurentian French and Parisian French:

a. J'ai vu personnel.
'I didn't see anyone.'

b. J'ai rien vu.
'I didn't see anything.'

c. Personne a rien vu.
NC favoured: 'No one saw anything'

Also, as mentioned in the introduction, Laurentian French and Parisian French differ in that sentential negation *pas*, as shown in (14a), can also participate in negative concord in the former dialect, as shown in (14b). Given this, many researchers have concluded that negative concord is variable in the Canadian dialect (Daoust-Blais 1975; Lemieux 1985; Déprez 1997; Déprez and Martineau 2004; Déprez 2011; Burnett et al. 2015, among others), and quantitative variationist studies have even been done to try to determine which factors favor using an utterance like (14b) compared to (13b) (see Daoust-Blais 1975; Lemieux 1985; Burnett et al. 2015).

(14) a. Laurentian French and Parisian French:
J'ai pas gagné.
'I didn't win.'

b. Laurentian French:
J'ai pas rien vu.
NC favoured: 'I didn't see anything'

Like with FTR, variation in negative concord in Laurentian French has been shown to be multifactorial. Social factors, particularly education, influence use patterns (with less educated speakers using more of the vernacular concord variant than more educated speakers) (Lemieux 1985; Burnett et al. 2015). However, as Milner (1979a) recognizes, and as Burnett et al. (2015) show in a corpus study, a major driver of variation between the bare NC item variant and concord variant is the *proximity effect*. More specifically, in their multifactoral investigation of negative concord in the Montréal 84 corpus (Thibault and Vincent 1990), they find that the concord variant is significantly more frequent when the NC item appears later in the sentence. So, for example, when the two negative elements appear extremely close together, like in a fragment answer (15), or when the verb is in a simple tense (16), the bare variant is

highly favored compared to the concord variant (a > b for (15) and (16)). However, when the NC item appears "late" in the sentence, for example, embedded under a participle (17) or preposition (18), then the concord and bare variants appear at almost equal rates (a ≈ b for (17) and (18)).

(15) Qui as-tu vu?
'Who did you see?'
a. Personne.
b. Pas personne.
'No one.' [a > b]

(16) a. Je vois personne.
b. Je vois pas personne.
'I see nobody.' [a > b]

(17) a. J'ai vu personne.
b. J'ai pas vu personne.
'I didn't see anyone.' [a ≈ b]

(18) a. Je parlerai à personne.
b. Je parlerai pas à personne.
'I didn't talk to anyone.' [a ≈ b]

These authors argue that the proximity effect is a soft instance of a hard (i.e., grammaticality) constraint, which has been argued to be operative in some Italian dialects, such as Piedmontese (see Zanuttini 1997). Zanuttini finds that when the verb is in a simple form, the co-occurence of the negative marker *nen* with an NC item like *gnun* 'no one' results in ungrammaticality of (19a), whereas if the NC item appears in an embedded structure (under a participle or a prepositional phrase), negative concord with *nen* is permitted (cf. (19b) and (19c)).

(19) Piedmontese:
a. *A veddu *nen gnun*.
I see not no one
Intended: 'I don't see anyone.' (Zanuttini 1997, p. 77)
b. I l'hai *nen* vist *gnun*.
I it.have not seen no one
'I have not seen anyone.' (Zanuttini 1997, p. 77)
c. A parla *nen* cun *gnun*.
he talks not with no one
'He doesn't talk with anyone.' (Zanuttini 1997, p. 77)

In a follow-up paper, Burnett (2016) attempts to explain the proximity effect as an instance of the NEGFIRST principle (Jespersen 1917; Horn 1989; de Swart 2010), which states that speakers have a tendency to place elements as soon as possible in the sentence for the sake of clarity. However, as Burnett observes, this analysis is not entirely satisfactory since the relevant distance appears to be defined *hierarchically*

instead of linearly, given that *pas* is more often pronounced when the NC item is *embedded* in the lower clause (20a) than in the upper clause (20b), even if the NC item is linearly adjacent to the finite verb in the bare variant.

(20) a. Je peux (pas) *rien* faire face à ça (*rien* in the lower clause)
I can not nothing do.INF face to that
'I can't do anything faced with that' (Burnett 2016, parentheses added)

b. Il-y-a (pas) *rien* mais ça serait calme (*rien* in the upper clause)
there is not nothing but it be.FUT calm
'there is nothing, but it will be calm' (Burnett 2016, parentheses added)

The proximity effect thus gives us evidence that NC items are sensitive to infinitival clause boundaries, along with light prepositional phrases and participles: they prefer (although do not require) *pas* in the highest VP domain when they themselves are structurally lower than this domain. In the next section, we will incorporate this idea of soft domain sensitivity into a formal analysis of the proximity effect in Laurentian French negative concord, and we will argue that this analysis predicts the polarity effect with *pas* and NC items in this dialect. Then, we will give an analysis of the different status of *pas* in Parisian French, which explains why it can escape the polarity effect, while the Laurentian French *pas* must obey it.

5 Agreement-based analysis

Negative concord, its properties, and typological distribution is a major area of study at the syntax-semantics interface. Given this, it is not surprising that there are many formal theories of negative concord that analyze such phenomena as involving a wide range of grammatical mechanisms, including polyadic quantification (de Swart and Sag 2002; de Swart 2010), ambiguity (Déprez 1997; Herburger 2001), quantifier raising (Giannakidou 2000, 2006), exhaustification (Chierchia 2013), among others. In this section, we explore how an analysis of the proximity effect and the polarity effect can be set within one style of formal analysis: the agreement-based approach. We start by analyzing negative concord in French using the agreement-based approach. Next, we show how this approach accounts for the proximity effect on negative concord in Laurentian French. We then illustrate how the same analysis can explain the polarity effect on future temporal reference in Laurentian French, and finally, how the polarity effect on FTR in Parisian varieties, along with the dialectal differences in the behavior of *pas*, can be explained.

5.1 Agreement approach to negative concord in Laurentian French

Although they are prefigured in works such as Haegeman and Zanuttini (1991, 1996), agreement-based approaches are now most commonly associated with the proposals of Zeijlstra (2004, 2008) and work that builds on this framework. In this approach, negative or similar elements may have uninterpretable or interpretable features, and every uninterpretable feature [uF] needs to probe for a goal carrying the corresponding interpretable feature [iF] and agree with it, so as to have all the uninterpretable

features checked and deleted before access to the interface. Zeijlstra proposes that negative concord is an instance of syntactic *agree* between uninterpretable negative features [uNEG] carried by negative words and interpretable negative features [iNEG] carried by a covert negative operator Op¬ or a negative marker. Put differently, words carrying [uNEG], like NC items, are semantically non-negative and need to agree with an [iNEG] feature, which expresses sentential negation.

This being said, negative concord patterns can vary across languages. For example, Czech is what is known as a *strict negative concord* language: a negative marker is obligatory regardless of the position of NC items in a negative sentence (21).

(21) Czech:

Dnes nikdo *(ne)volá
today n-body NEG.calls

'Today nobody is calling'

According to Zeijlstra, all the NC items carry an uninterpretable negative feature [uNEG], which needs to be checked by an interpretable negative feature [iNEG]. In strict negative concord languages like Czech, the negative marker also carries [uNEG] and needs to agree with [iNEG] carried by a hidden operator (Op¬) in a position which "immediately c-commands the highest instance of [uNEG]" (Zeijlstra 2008, p. 25), as illustrated in (22).

(22) Czech:
[Dnes Op¬$_{[iNEG]}$ [$_{TP}$ nikdo$_{\sout{[uNEG]}}$ *(ne)volá$_{\sout{[uNEG]}}$]]
(Zeijlstra 2008, p. 25)

Non-strict negative concord languages require that preverbal NC items appear without a negative marker; however, they allow or require postverbal NC items to be c-commanded by a negative marker. The classic example of a non-strict negative concord language is Italian (23). However, as discussed by Déprez (1997), Déprez and Martineau (2004), Labelle (2019), and others, Laurentian French seems to fit this pattern as well, although, in contrast to Italian, *pas* is only allowed with post-verbal NC items, not required (as shown in (24)).

(23) Italian:[5]

a. Nessuno (*non) ha telefonato
N-body NEG has called
'Nobody called'

b. Gianni *(non) ha telefonato a nessuno
Gianni NEG has called to n-body
'Gianni didn't call anybody'
(Zeijlstra 2008, pp. 2–3)

[5]Both examples in (23), along with asterisks and parentheses, were cited as such from Zeijlstra (2008). Grammatical judgments seem to vary for sentences where a preverbal NC item and negative marker co-occur, like (23a), as some speakers consider it as grammatical under a double negation reading. However, it has been argued that a double negation reading in these cases is available only when special prosodic features are present (see the footnote in (Zeijlstra 2008, p. 3)). We will show how our analysis can account for double negation reading for those sentences in (33c).

(24) Laurentian French:

a. Personne a (*pas) bougé.[6]
'Nobody has moved.'
(Burnett et al. 2015, p. 12, parenthesis and translation added)

b. J'ai (pas) vu personne.
'I didn't see anyone.'

To account for the fact that negative concord with *pas* is possible with postverbal NC items in Laurentian French, Zeijlstra (2004) proposes that *pas* carries [uNEG]. We also adopt this proposal. However, as presented in the 2004 paper, Zeijlstra's analysis of Laurentian French negative concord is not complete, since it does not explain why concord is impossible with preverbal NC items. To complete this analysis, we start by looking into the recent history of French spoken in Canada and France. Spoken French negation used to be bipartite, composed of a particle *ne*, which accompanied *pas*.

(25) a. Je ne vois pas le problème.

b. $[_{TP}$ Je $[_{T}$ ne-vois$_i]_j$ $[_{NegP}$ pas $[t_i]_j$ $[_{VP}$ t_i le problème]]]
'I don't see the problem.'

In his classic paper, Pollock (1989) analyzes *ne* as occupying the head of NegP, whereas *pas* occupies its specifier. *Ne* then cliticizes onto the verb, which stops off in Neg on its way raising to T, as shown in (25b). Thus, *ne* ends up in the head of T at the end of the derivation, c-commanding all postverbal arguments, as well as *pas*.

As discussed above (and documented by Sankoff and Vincent (1977), Ashby (1976, 1981)), *ne* has been lost from the spoken language in both Canada and Europe. However, we propose that a hidden negative operator *Op*¬, carrying [iNEG], remains in its place, in both Laurentian and Parisian Frenches.[7] Following Zeijlstra (2004), we propose that the Op$\neg_{[iNEG]}$ is triggered if the sentence is semantically negative and contains a [uNEG] feature that lacks a corresponding [iNEG] feature to check it, "both for semantic reasons (otherwise these sentences would not be semantically negative) and for syntactic reasons (otherwise there is no element carrying [iNEG] that negative elements can check their [uNEG] features against)" (Zeijlstra 2004, p. 246).[8] As in the Pollock proposal, *Op*$\neg_{[iNEG]}$ is generated in the head of Neg, and raises with the verb into the head of T, as in (27). The proposal that the hidden operator ends up in T or a higher position is also motivated by the fact that

[6] With the negative marker, the sentence may be grammatical under a double negation reading with special pragmatic and prosodic features. This possibility will be discussed later in this section, and a derivation of DN reading will be provided in (33c).

[7] Note that many studies of the current formal, written language suggest that *ne* has lost its negative meaning, acting more like a scope marker (Godard 2004). In this way, our proposal is not that Op¬ is semantically the same as current French *ne*, but more like 18th-century spoken French *ne*.

[8] An argument in favor of a silent negative operator is that the negative operator can occupy a different position than the negative marker, where negation must scope over the universal quantifier, as shown by the following example (although this fact could also be explained through obligatory reconstruction of the subject):

sentential negation must scope over the tense scope to yield a proper negation meaning. As an illustration, adopting the formalism by Partee (1973) and Champollion (2015), reference time is written as t_r, temporal inclusion as $\subseteq_T$, and temporal precedence as $\ll$; the meaning of *Jean n'a pas vu le problème* could be represented as (26a), where negation scopes over the tense, and the version (26b), where negation scopes under the tense does not express the intended meaning of the sentence:

(26) Jean n'a pas vu le problème. ['Jean did not see the problem']

a. negation > t
$t_r \ll \text{now} \wedge \neg\exists t \exists e[\text{see\_the\_problem}(e) \wedge \text{ag}(e) = \text{jean} \wedge \tau(e) = t \wedge t \subseteq_T t_r]$
There does not exist a time in the (relevant) past during which the event Jean sees the problem exists.

b. negation < t:
$t_r \ll \text{now} \wedge \exists t \neg\exists e[\text{see\_the\_problem}(e) \wedge \text{ag}(e) = \text{jean} \wedge \tau(e) = t \wedge t \subseteq_T t_r]$
?There exists a time in the (relevant) past during which the event Jean sees the problem does not exist.

In this way, in Laurentian French, even a simple negative sentence like (27a) is analyzed as a kind of concord construction, where the negative operator *Op*¬ agrees with *pas*, which lies within its scope, shown by (27b).

(27) a. Je vois pas le problème. ['I don't see the problem.']

b. $[_{TP}$ Je $[_{T}$ Op¬$_{[iNEG]}$-vois$_i]_j$ $[_{NegP}$ pas$_{\text{[uNEG]}}$ $[t_i]_j$ $[_{VP}$ t_i le problème]]]]

In the case of NC items in subject position, there are two options. One is that, since French subjects start out in a VP internal position, and then move to SPEC TP (Koopman and Sportiche 1991), agreement between the [uNEG] on *personne*, in an utterance like (28) and the [iNEG] on Op¬ in T, takes place through SPEC-head agreement (28a). Alternatively, Op¬ could move covertly to a position in the left periphery, where it takes scope over all the arguments in the structure (28b).

(28) Personne est venu. ['Nobody has come']

a. SPEC Head analysis:
$[_{TP}$ Personne$_{\text{[uNEG]}k}$ Op¬$_{[iNEG]j}$-est $[_{NegP}$ t_j $[_{VP}$ t_k venu]]]

b. Move higher analysis:
$[_{FocP}$ Op¬$_{[iNEG]j}$ $[_{TP}$ Personne$_{\text{[uNEG]}k}$ t_j-est $[_{NegP}$ t_j $[_{VP}$ t_k venu]]]]

To understand why, in Laurentian French, the NC reading is ungrammatical when *pas* co-occurs with an NC item in preverbal position like (24a), we can look to work by Haegeman and Lohndal (2010) on West Flemish negative concord. In Zeijlstra's

(i) Tous les hommes (ne) sont pas intelligents.
all the men (NEG) are NEG clever
'Not all men are clever'

proposal, negative concord is a multiple *agree* relation between an [iNEG] and each of the [uNEG]s in the sentence. However, Haegeman and Lohndal (2010) show that there are locality restrictions on negative concord in West Flemish. In this language, multiple NC items, like *niet dikkerst* 'not often' and niemand 'nobody,' can jointly express a negative concord reading with the negative marker *niet* 'not', as in (29a). However, *niet dikkerst* cannot appear between *niemand* and *niet*, otherwise the NC reading is ungrammatical, as shown in (29b). In addition, the quantifier *alles* 'all' also disrupts the NC relation between *niemand* and *niet*, as in (30). West Flemish is a strict NC language, where negative marker *niet* 'not' carries [uNEG]. If NC is multiple *agree*, both (29b) and (30) should have been grammatical with an NC reading, because all of the [uNEG]s in the sentence should be able to agree with the [iNEG] carried by the upper operator OP¬. However, the NC reading is banned for both sentences, and a double negation reading is marginally acceptable.

(29) West Flemish:

a. dat er *niet dikkerst niemand* in dat us *niet* gewerkt eet
that there not often no.one in that house not worked has
NC: 'that not often has anyone worked in that house'

b. *dat er *niemand niet dikkerst* in dat us *niet* gewerkt eet
that there no.one not often in that house not worked has
??DN: 'that not often did anyone not work in that house' /*NC
(a and b from Haegeman and Lohndal 2010, p. 191, italicization added)

(30) West Flemish:

dat er *niemand alles* *niet* kent
that there no.one everything not know

DN: 'that nobody doesn't know everything
*NC: 'that nobody knows everything' (translation and italicization added)
(Haegeman and Lohndal 2010, p. 207)

To explain why the NC reading is ungrammatical in those cases, Haegeman and Londahl argue that negative concord is better analyzed as binary *agree*, which takes place hierarchically from the lowest pair of [uNEG]s to the highest [uNEG], and [iNEG] hosted by the negative operator. More specifically, they propose that NC applies to a pair of adjacent features in a hierarchical way, and that "after Agree between two uninterpretable features, the uninterpretable feature survives on the higher element" (Haegeman and Lohndal 2010, p. 197). In addition, starting from Haegeman and Zanuttini (1996)'s classification of negative elements based on their [NEG] (negation) and [Q] (quantifier) features, Haegeman and Londahl further propose that WF negative elements are composed as a combination of [u/iNEG] and [u/iQ] features. For what is relevant here, the sentential negation operator carries [iNEG] and [iQ], because "what is labeled 'sentential negation' is not merely a negative feature taking scope over the clause; rather, it involves negative quantification over events" (Haegeman and Lohndal 2010, p. 201). The negative marker *niet* is assumed to bear [uNEG] and [uQ], as *niet* has developed from a negation reinforcer at Stage II of

Jespersen's cycle into a sentential negation marker, where a feature change from [iQ] to [uQ] was involved. *Niemand* carries [uNEG] and [iQ], and *niet dikkerst* carries [uNEG] (see Haegeman and Lohndal 2010, pp. 200–204 for a full derivation of features for all negative elements in West Flemish).

With this in mind, let us look at how they explain the ungrammaticality of the NC reading for (29b), repeated below in (31a). As illustrated in (31b), *niet*, bearing [uNEG] and [uQ], first agrees with *niet dikkerst*, having its [uNEG] valued and [uQ] stranding. Then *niet dikkerst* agrees with *niemand* on [uNEG], which goes on to agree with the [iNEG] of the operator in the next step. This stepwise binary agreement leaves open the possibility that other elements with similar feature specifications may intervene in this process (see Rizzi 1990). The latter is what Haegeman and Londahl claim gives rise to the ungrammaticality in (31a): [iQ] on *niemand* cannot agree with [uQ] stranding on *niet* due to some intervening [uNEG] on *niet dikkerst*, as [NEG] and [Q] belong to the same feature class (Rizzi 2004, 2011). The same analysis is proposed to (30), repeated in (32a), where [iQ] on *alles* intervenes in the *agree* relation of [uNEG] between *niemand* and *niet*, leaving [uNEG] on *niet* unvalued, as illustrated by (32b).

(31) a. *dat er *niemand niet dikkerst* in dat us *niet* gewerkt eet
that there no.one not often in that house not worked has
??DN: 'that not often did anyone not work in that house' /*NC

b. *Op niemand niet dikkerst niet
[iNEG,iQ] [uNEG,iQ] [uNEG] [uNEG,uQ]

(32) a. dat er niemand alles niet kent
that there no.one everything not know
*NC: 'that nobody knows everything' (translation added)
(Haegeman and Lohndal 2010, p. 207)

b. *Op niemand alles niet
[iNEG,iQ] [$uNEG$,iQ] [iQ] [$uNEG$,uQ]

We hypothesize that a similar intervention effect occurs when a subject NC item, carrying [uNEG] raises from its VP internal base-generated position to the SPEC of TP, and the *pas* appears in SPEC NegP, also carrying [uNEG], as shown by example (33a). Following Haegeman and Zanuttini (1996), we postulate that in Laurentian French, the hidden negative operator also carries two interpretable features, [iNEG] and [iQ], as sentential negation involves negative quantification over events. The negative marker *pas* in Laurentian French carries [uNEG] following Zeijlstra (2004). In addition, following the analysis proposed for the negative marker *niet* in West Flemish, we also posit that *pas* in Laurentian French carries the [uQ] feature. Originally meaning 'step,' before becoming a negation reinforcer, *pas* was often used to denote the smallest measurable unit of quantity, and was restricted to semantically-compatible verbs as in "I don't walk a step." (Hansen 2013; Carlton 2022). During the Old French period, *pas* became generalized across all negative contexts, evolving into a negation reinforcer (Stage II of Jespersen's cycle). It is therefore plausible to hypothesize that, as *pas* transitioned into a negation reinforcer, it incorporated a

quantificational element akin to 'a' or 'any,' together with an [iQ] feature. Subsequently, as *pas* further evolved into a negative marker, the [iQ] feature transformed into [uQ], following a similar process to that proposed for *niet* in West Flemish. Thus, we propose that in modern Laurentian French, the negative marker *pas* carries both [uNEG] and [uQ] features.[9] In the case of NC items that function as quantifiers,[10] their Q feature should be interpretable since they are quantifiers. We postulate that the quantificational feature [iQ] on these NC items cannot agree with [uQ] on other words, as they each introduce distinct domains of quantification: *personne* quantifies over individuals, *rien* over objects, and *jamais* over time. When these NC items co-occur, each contributes its own quantificational meaning, rendering the [iQ] feature on NC items unavailable for concord. Consequently, only the [uNEG] feature on NC items is subject to *agree*.

In (33a), *agree* first applies to *personne* and *pas*, resulting in a configuration that will only delete [uNEG] on *pas*, stranding [uQ] there. The [uNEG] feature on *personne* survives, and agrees with the negative operator Op¬. However, [uQ] on *pas* cannot be valued by Op¬ because of the intervention of [uNEG] on *personne*, thus leading to the ungrammaticality of (33a) under a negative concord reading, illustrated by (33b).

(33) a. *?*Personne* a *pas* bougé. [*NC/?DN]

b. *Op¬ Personne a pas bougé. (*NC)
[iNEG,*iQ*] [uNEG] [uNEG,*uQ*]
NC intended: 'Nobody has moved.'

c. Op¬1 Personne Op¬2 a pas bougé. (?DN)
[iNEG,iQ] [uNEG] [iNEG,iQ] [uNEG,uQ]
DN possible: 'Nobody has not moved.'

Our proposal is also compatible with a possible double negation reading of (33a).[11] In this case, we propose that two negative operators appear (cf. (33c)). The first operator Op¬1 ends at a higher position, agreeing with [uNEG] on *personne* at the subject position. The second operator is situated in the head of T, which scopes over tense and agrees with *pas* for both [uNEG] and [uQ]. Given two [iNEG]s, the

[9] It is interesting to consider an alternative analysis in which *pas* would host [iNEG]. Under this analysis, the explanation for the variable non-strict NC pattern would be similar to what has been argued for the non-variable non-strict NC pattern in Italian. However, the new facts presented in this paper suggest that an analysis, where *pas* in Laurentian French French hosts [uNEG], should be preferred, since, under our analysis, [iNEG] on *pas* would predict that *pas* would not favor the use of the synthetic future. It may be possible to pursue an analysis of Laurentian French, where *pas* has hosting [iNEG]; however, accounting for our patterns would require additional supplementary assumptions. We thank the editor for bringing this possible alternative analysis to our attention.

[10] An anonymous reviewer noted that not all NC items are quantifiers, such as *ni...ni...*. However, this would not impact our analysis, as later in this paragraph we clarify that only the [uNEG] feature on NC items is subject to Agree.

[11] Although the double negation reading is possible with (33a), it is not the most natural interpretation of the sentence. Furthermore, the sentence is not preferred, because *personne* appears rarely in the subject position. The cleft construction, "Il y a personne qui a bougé," is often used instead to express a similar meaning.

sentence has a double negation reading. The derivation of DN reading of the sentence is given by (33c).

This analysis extends beyond the preverbal *personne*. It also explains why the negative marker *pas* cannot follow any NC items under an NC reading, as in (34). This is because [uNEG] on the NC item blocks the *agree* relation between [iQ] on the Op¬ situated above the NC item, and [uQ] on *pas*, which is located below the NC item. In essence, the [uQ] feature on *pas* cannot agree with the [iQ] feature on the Op¬ due to the intervention of [uNEG] on the preverbal NC item. As a result, our analysis correctly predicts that in an NC interpretation of a sentence, *pas* cannot be situated after any NC item.

(34) *?Op¬ *Jamais* ils viendront *pas*.
[iNEG,iQ] [uNEG] [uNEG,uQ]
*NC: 'Never they will come'/?DN: 'Never they will not come.'

One might question whether our analysis incorrectly predicts the availability of an NC reading in a sentence where *pas* precedes a preverbal NC item in the subject position, as in (35). According to our analysis, both [uNEG] and [uQ] features on *pas* can be checked by the [iNEG] and [iQ] on Op¬ and yield an NC reading, yet some scholars argue that the NC reading is ungrammatical in such cases. However, as discussed in Burnett et al. (2015), speakers' judgments can vary for negative concord reading within constituent negation, and for some, (35) is acceptable and does yield an NC reading. Therefore, we do not consider this a counterexample to our analysis.

(35) ?Op¬ *Pas* *personne* est venu.
[iNEG,iQ] [uNEG,uQ] [uNEG]
?NC: 'Nobody has come.'

Our analysis also explains why sentences such as (36), where a negative adverb other than *pas* follows another NC item like *personne*, can give rise to an NC reading. In such instances, as depicted by (36b), the Op¬ spans a position above the leftmost NC item. Every [uNEG] on a lower NC item is checked and deleted by the [uNEG] on a higher NC item, and ultimately, the remaining [uNEG] on *personne* is checked by the [iNEG] feature of the leftmost Op¬, resulting in a well-formed sentence. If the sentence receives a double negation reading, given particular prosodic features or pragmatic contexts, similar to the proposal for (33c), two negative operators carrying [iNEG] are triggered and each agrees with [uNEG] features that are under its scrope, as shown by (36c).

(36) a. Personne a jamais rien dit.
b. Op¬ Personne a jamais rien dit.
[iNEG,iQ] [uNEG] [uNEG] [uNEG]
NC: 'Nobody has ever said anything.'
c. Op¬1 Personne Op¬2 a jamais rien dit.
[iNEG,iQ] [uNEG] [iNEG,iQ] [uNEG] [uNEG]
DN: 'Nobody has ever said nothing.'

So far, we have discussed cases where *pas* and NC items appear in negative contexts and how our proposal can derive the NC or DN readings of a sentence. Beyond negative contexts, French NC items can also be found with certain types of downward entailing contexts, like *sans* 'without,' *avant* 'before,' expressions of doubt, comparatives, rhetorical questions, etc. (Milner 1979b; Herburger 2023), as shown by the following examples in (37):

(37) a. Pierre parle sans que nul puisse l'arrêter.
'Pierre talks (so much) without anybody being able to stop him.'

b. Pierre est parti avant que j'aie pu dire à Paul de faire rien pour lui.
'Pierre left before I could tell Paul to do anything for him.'

c. Pierre est plus gentil qu'aucun de ses amis.
'Pierre is nicer than any of his friends.'
(all from Milner (1979b), pp. 81-82, translations cited from Herburger (2023))

Following proposals such as Zeijlstra (2014) and Herburger (2023), these patterns can be explained by the fact that the NCI licensor of these contexts, such as *sans* and *avant*, bears a [iNEG] feature, and therefore checks the [uNEG] feature on NC items, as illustrated in (38):

(38) a. Pierre parle sans$_{[iNEG]}$ que nul$_{[uNEG]}$ puisse l'arrêter.

b. Pierre est parti avant$_{[iNEG]}$ que j'aie pu dire à Paul de faire rien$_{[uNEG]}$ pour lui.

To summarize:

- We follow Haegeman and Lohndal (2010) position: *agreement* between [uNEG]s and [iNEG]s is binary and therefore subject to intervention effects.
- **Our proposal:** The ungrammaticality of the co-occurrence of a preverbal NC item and concord *pas* in Montreal French is explained through the intervention effect triggered by [uNEG] on the NC item. Since the [uNEG] feature on the preverbal NC item is positioned between the [iQ] feature on the leftmost Op¬ and the [uQ] feature on *pas*, it disrupts the *agree* relation between [uQ] on *pas* and [iQ] on Op¬. This ungrammaticality can be schematized as follows: *Op$_{[iNEG,\mathbf{iQ}]}$ NC item$_{[uNEG]}$ pas$_{[uNEG,\mathbf{uQ}]}$.
- In the case of double negation reading, we assume that two negative operators Op¬ carrying [iNEG] are triggered and agree with [uNEG] features on *pas* and/or NC items.

Our analysis offers a comprehensive explanation for the observed instances of negative concord (NC) and effectively rules out constructions that do not align with an NC reading in Laurentian varieties. With this understanding in hand, we will now show how this analysis sheds light on both the proximity effect and the polarity effect, observed, respectively, in negative concord and future temporal reference.

5.2 The proximity effect

A wealth of research has shown that negative concord is subject to very particular locality restrictions (Zanuttini 1997; Giannakidou 2000, 2006, among many others). In particular, NC is often proposed to be (largely) clause-bounded, paralleling the licensing conditions of what are known as *strong* negative polarity items (Giannakidou 2000). For example, whereas Russian is a strict NC language (Brown 1999; Lyutikova and Gerasimova 2023), an NC item must be licensed by a clausemate negative marker *ne* 'not,' and a finite clausal boundary systematically blocks the NC relation and results in ungrammaticality of (39a) if *ne* in the embedded clause is omitted. Likewise, in Italian, a non-strict NC language, as presented above, the NC relation cannot be established over most of the finite clausal boundaries, as shown in (39b).

(39) a. Russian:

Hotja poroj mne *ne* kažetsja, čto on voobšče
although sometimes me.DAT NEG seems that he.NOM at all
*(*ne*) ljubit *nikogo*.
NEG loves nobody.ACC

'Although sometimes it does not seem to me that he likes nobody at all.' (Lyutikova and Gerasimova 2023, p. 33)

b. Italian:

*Gianni *non* ha detto che ha telefonato a *nessuno*.
Gianni NEG has said that has called to nobody

Intended: 'John didn't say that he called anybody.' (Zeijlstra 2012, p. 520)

Similarly, though negative concord in both spoken Laurentian and Parisian French is fine with two NC items in a simple finite clause as in (40), in both dialects the only interpretation available for most sentences with a finite subordinate clause is double negation (41).[12]

(40) Personne voit personne. [NC: 'Nobody sees anyone.']

(41) Personne a dit [que personne est venu]. [DN: 'Nobody said that no one came.']

Non-finite clausal boundaries generally do not block the NC relation in Russian or Italian. However, as presented in Sect. 4, some Italian dialects, like Piedmontese, do

[12]NC is allowed across finite clausal boundaries of certain subjunctive clauses, at least in French and Italian.

i. French:
Je veux (pas) que Jean voie personne.
I want not that Jean see no one
'I don't want Jean to see anyone.' (Burnett 2016, p. 285)

ii. Italian:
Non pretendo che tu dica niente.
non I-ask that you say (subj) nothing
'I don't ask that you say anything'. (Haegeman 1995, p. 80)

exhibit grammatical contrast related to non-finite clausal boundaries: when the verb is in a simple form and a postverbal NC item like *gnun* occurs, the negative marker *nen* must be omitted. On the other hand, when a PP/VP/IP boundary is present, the negative marker *nen* can occur to establish an NC relation with the NC item (cf. (19), repeated in (42) below). In French, although NC readings between *ne* and an NC item, or between two NC items, are assumed to be the default in a finite clause, DN is favored when two negative words appear in different scope domain (Déprez and Yeaton 2022), such as when a PP boundary separate the two negative words (43):

(42) Piedmontese:

a. *A veddu *nen gnun*.
I see not no one
Intended: 'I don't see anyone.' (Zanuttini 1997, p. 77)

b. I l'hai *nen* vist *gnun*.
I it.have not seen no one
'I have not seen anyone.' (Zanuttini 1997, p. 77)

c. A parla *nen* cun *gnun*.
he talks not with no one
'He doesn't talk with anyone.' (Zanuttini 1997, p. 77)

(43) Personne ne se fâche pour rien
Nobody neg 3rd-Refl angers for nothing
'Nobody gets angry for nothing' (Déprez and Yeaton 2022, p. 5)

Based on these cross-linguistic facts, we can conclude that the finite-clause constraint on negative concord operates at the grammaticality (hard) level. However, we propose that the agreement relations between [iNEG] and [uNEG], or between two [uNEG]s, are subject to an even stronger locality constraint, albeit one that is operative at the preferential (soft) level. In particular, in the same way that the agreement relation between the [uNEG] on the higher *personne* and [uNEG] on the lower *personne* is disrupted by the clause boundary introduced by *dire* in (41), so too do we propose is the relation between the [iNEG] on the negative operator in T and the [uNEG] on *personne* disrupted by the participial, prepositional, and infinitival boundaries in the constructions in (44) to (46).

(44) Jean [$_T$ Op¬ a] [$_{VP}$ vu personne]. ['Jean saw nobody.']

(45) Jean [$_T$ Op¬ parle] [$_{VP}$ [$_{PP}$ à personne]]. ['Jean talks to nobody.']

(46) Jean [$_T$ Op¬ veut] [$_{TP[-fin]}$ voir personne]. ['Jean wants to see nobody.']

More specifically, it appears that the feature checking domain of Op¬$_{[iNEG,iQ]}$ is within the higher part of tensed clause, particularly SPEC NegP. As presented in Sect. 2, in languages across the Scandinavian family, negative quantifiers must overtly raise out of the VP to the Spec NegP, as shown in (47) (Christensen 1986). In English, negative quantifier raising is typically observed at the preferential level (i.e., as a soft constraint) (Burnett et al. 2018): although both sentences in (48) are grammatical, negative quantifiers that occur below VP, for example, in a compound tense like (48a), are less frequent, and the variant with an NPI, like (48b), is preferred to avoid the violation of the negative quantifier raising constraint.

(47) a. *Jon hefur lesið *engar baekur*. [Icelandic]
Intended: 'Jon has read no books'

b. *Jeg har laest *ingen bøger*. [Danish]
Intended: 'I have read no books.'

c. *Jon har lest *ingen romaner*. [Norwegian]
Intended: 'Jon has read no novels.'

(48) a. I've got nothing for them. [negative quantifier]

b. I've not got anything for them. [NPI]

As Kayne (1998) shows, French also exhibits some clear cases of negative quantifier raising. For example, some varieties of French allow movement of *rien* ('nothing'), even out of finite subjunctives, as illustrated in (49a), and all French varieties allow *rien* to move across some infinitival boundaries, as in (49b).

(49) a. Il n'a rien fallu que je fasse.
it neg-has nothing been-necessary that I do
'I had to do nothing'. (translation added)

b. Jean n'a rien voulu faire.
J neg-has nothing wanted to-do
'John didn't want to do anything.' (Kayne 1998, pp. 141–142)

Therefore, we assume that, in French, as in many other languages (see Christensen (1986) for Scandinavian and Kayne (1998), Burnett et al. (2018) for English[13]), postverbal negative elements also raise overtly to SPEC NegP to be in the appropriate domain for checking with [iNEG] if the grammar allows. We further posit that the tendency to raise negative elements is driven by a preference for shortening the *agree* relationship between [iNEG] and the highest surviving [uNEG] on NC items, and *pas* in Laurentian varieties. Thus, in a sentence with a bare NC item and a simple finite verb, the direct object *personne* raises from object position to SPEC NegP (50).

(50) a. Jean voit personne. ['Jean sees nobody.']

b. Jean_k $[_T$ Op$\neg_{[iNEG,iQ]}$ voit_j $][_{NegP}$ $\text{personne}_{i\,[\sout{uNEG}]}$ $[_{VP}$ t_k t_j t_i $]]$

In the examples in (44) to (46), the NC item is clearly not in SPEC NegP, which, we argue, is why these sentences are not optimal, although they remain grammatical. The concord variants, on the other hand, allow *pas* to appear in SPEC NegP, allowing for a shorter agreement with [iNEG,iQ] on the Op¬. Furthermore, following Rowlett (1998, 1992),[14] we suggest that *pas* actually starts off as an adjunct to the VP before moving into SPEC NegP to agree with Op¬'s [iNEG,iQ]. Therefore, the appearance

[13] Kayne (1998) further proposes that English, like Scandinavian languages, systematically raises the negative quantifier to NegP, accompanied with VP-preposing.

[14] Given the distributional parallels between *pas* and adverbs (Pollock 1989), Rowlett proposes that *pas* "is generated adjoined to the lexical projection it modifies, that is, VP", and "raises from its VP-adjoined base position to SpecNegP in order to convert constituent negation into sentential negation" (Rowlett 1998, p. 43), based on arguments including: 1) the position of *pas* patterns with many adverbs like "déjà," as they both occur behind the simple verb, and in composed tense, between the auxiliary and the participle; 2) *pas* has a fundamental relationship with the verb, therefore *pas* is analyzed as a negative adverb/modifier

of *pas* shortens the distance of applying *agree* between [iNEG] and [uNEG], which does not cross the participial, PP, and infinitival boundaries, as shown by (51b) to (53b), compared with their corresponding non-concord variants (44) to (46), whose structures are depicted by (51b) to (53b).[15]

(51) a. Jean $[_T$ Op¬$_{[iNEG,iQ]}$ a$]$ $[_{NegP}[_{VP}$ vu personne$_{\text{[uNEG]}}$ $]]$. [bare variant]

b. Jean $[_T$ Op¬$_{[iNEG,iQ]}$ a$]$ $[_{NegP}$ **pas**$_{\text{[uNEG,uQ]}i}$ $[_{VP}$ t_i vu personne$_{\text{[uNEG]}}$ $]]$.
'Jean saw nobody.'

(52) a. Jean $[_T$ Op¬$_{[iNEG,iQ]}$ parle$]$ $[_{NegP}[_{VP}$ $[_{PP}$ à personne$_{\text{[uNEG]}}$ $]]]$. [bare variant]

b. Jean $[_T$ Op¬$_{[iNEG,iQ]}$ parle$]$ $[_{NegP}$ **pas**$_{\text{[uNEG,uQ]}i}$ $[_{VP}$ t_i $[_{PP}$ à personne$_{\text{[uNEG]}}$ $]]]]$.
NC: 'Jean talks to nobody.'

(53) a. Jean $[_T$ Op¬$_{[iNEG,iQ]}$ veut$]$ $[_{TP[-fin]}$ voir personne$_{\text{[uNEG]}}$ $]$. [bare variant]

b. Jean $[_T$ Op¬$_{[iNEG,iQ]}$ veut$]$ $[_{NegP}$ **pas**$_{\text{[uNEG,uQ]}i}$ $[_{TP[-fin]}$ voir $[_{VP}$ t_i personne$_{\text{[uNEG]}}$ $]]]$.
NC: 'Jean wants to see nobody.'

Since the *agree* relation between Op¬'s [iNEG] and the upmost [uNEG] is shorter in the sense that it does not cross any participial, PP, and non-finite clause boundaries, the structures in (51b)–(53b) are at least as good if not structurally better than the utterances without *pas*. However, when the verbal complex is simpler, the NC item itself can raise to SPEC NegP, and so the non-concord structure (i.e., (50), repeated in for ease of comparison) is preferred to the concord structure (54b), which is poten-

and should be adjoined to the verb by *adjunct projection principle*; 3) Zanuttini (1996) notes that the distribution of the equivalent of *pas* in other Romance varieties (e.g., Piedmontese *nen*) also overlaps with some adverbs, and therefore she analyzes them as lexical adverbial elements generated in an adjoined position lower than NegP; 4) Cardinaletti and Guasti (1993) also analyze *pas* as an adverb. Furthermore, when *pas* co-occurs with an adverb like *encore* and *toujours*, *pas* can follow the adverb, although the usage is limited:

i. (...) et, quand il rentrait, il ne se couchait *encore pas*, il écrivait, il préparait la fameuse insurrection. (*Le Ventre de Paris*, Zola, 1873)
ii. Une gravité singulière se répandit en Gillette, transformant la jeune fille espiègle en une femme réfléchie qu'Aube ne connaissait *encore pas*. (*La demoiselle au Bois Dormant*, 2012)

[15] As noted by an anonymous reviewer, the bare variants, i.e., the equivalent (44) to (46) are not grammatical in *negative concord* languages, such as Italian, Portuguese, or Spanish, and a negative marker is obligatory to make the sentence grammatical. This could be accounted for by our analysis in the following way: in French, there is a preference for shortening the *agree* between [iNEG] and the highest [uNEG], not crossing any finite or non-finite PP/VP/infinitival boundaries in French. However, in Italian, Spanish, and Portuguese, this preference (i.e., "soft" constraint) may become a "hard" constraint. Therefore, in the equivalent examples in these languages of the above (26)–(28), since the *agree* relation between an [iNEG] in NegP hosted by the hidden operator and the highest [uNEG] crosses those boundaries, this constraint is violated, therefore those sentences are not grammatical.

Table 1 Negative concord with *pas* in Montréal 84 by NC item (Burnett et al. 2015, p. 16)

NC item	N	Concord rate
nulle part	18	83%
personne	120	59%
ni...ni	50	26%
rien	937	15%
aucun	150	11%
jamais	1124	1%
TOTAL	2399	11%

tially ambiguous between NC and DN reading. Our proposal thus provides a formal explanation for the proximity effect on NC, namely a significantly higher rate of concord when the NC item is embedded (including participials, PP, and non-finite TP, concord rate 41%) compared with when it is unembedded (concord rate 5%) in the Montreal 84 corpus (concord rates cited from Burnett et al. 2015).

(54) a. Jean$_k$ [$_T$ Op¬$_{[iNEG,iQ]}$ voit$_j$] [$_{NegP}$ personne$_{i\,\sout{[uNEG]}}$ [$_{VP}$ t_k t_j t_i]]

b. ?Jean [$_T$ Op¬$_{[iNEG,iQ]}$ voit$_j$] [$_{NegP}$ *pas*$_{\sout{[uNEG,uQ]}}$ personne$_{i\,\sout{[uNEG]}}$ [$_{VP}$ t_j t_i]].
NC: 'Jean sees nobody.'

We propose that all NC items and *pas* behave in this way in Laurentian French, although they may have their own particularities. Indeed, as shown by Burnett et al. (2015), the concord rate varies according to different NC items in Montreal French (cf. Table 1), which could result from the difference in the base-generated position and surface position of each NC item. Examples of concord variants with each NC item are illustrated in (55). In the remainder of this section, we will demonstrate how the analysis described above accounts for the negative concord rate of some most frequent NC items.

(55) a. J'ai vu que ça marchait *pas* à *nulle part*.
'I saw that it didn't work out anywhere'

b. Il a *pas* tué *personne* au parc Maisonneuve.
'He didn't kill anyone at Maisonneuve park.'

c. J'aime *pas* beaucoup *ni* le thé *ni* le café.
'I don't like either tea or coffee very much.'

d. Je le sais pas encore, je peux *pas rien* dire.
'I don't know it yet, I can't say anything.'

e. Je mangeais *pas aucun* légume.
'I didn't eat any vegetables.'

f. Bah, je me suis *pas jamais* attardé à la loi-cent-un.
'Bah, I never paid attention to law 101.' (all examples originally from Montreal 84 corpus, cited from Burnett et al. 2015, p. 13)

To begin with, *nulle part* 'nowhere' often surfaces at the end of a sentence:

(56) a. Je [$_T$ Op¬$_{[iNEG,iQ]}$n'ai] [$_{NegP}$ [$_{VP}$ vu cela] nulle part$_{\sout{[uNEG]}}$].
'I did not see it anywhere.'

b. Je [$_T$ Op¬$_{[iNEG,iQ]}$ trouve] ça nulle part$_{\sout{[uNEG]}}$. ['I do not find it anywhere.']

c. Il [$_T$ Op¬$_{[iNEG,iQ]}$ est] [$_{NegP}$ nulle part$_{\sout{[uNEG]}}$]. ['He is nowhere.']

Since *nulle part* is often right adjoined to VP, its position is further away (at least linearly) from the [iNEG] than *personne*:

(57) Je (n')ai vu personne nulle part. ['I did not see anyone anywhere.']

Therefore, we predict that *nulle part* is associated with at least equal, or even higher concord rate than *personne*: when an utterance contains a participial, prepositional, or infinitival phrase, or a verb of simple tense with an object, *nulle part* stays in the embedded VP. The appearance of *pas* would shorten the *agree* relation between [iNEG] and the upmost surviving [uNEG], thus making the concord structure a better one for *agree* compared with the non-concord variant. On the contrary, with a bare verb without object (56c), *nulle part* can move to SPEC NegP to agree with [iNEG]. Therefore, the simpler non-concord structure would be favored. These predictions are actually borne out, as *nulle part* has the highest concord rate (83%) in the Montreal 84 corpus, followed by *personne* (59%), as shown in Table 1. Although the difference in concord rate between *nulle part* and *personne* needs to be interpreted by caution, as *nulle part* has much fewer utterances compared with *personne*, our analysis is consistent with the general observations that both *nulle part* and *personne* tend to appear at a surface position embedded by VP, and therefore favor the concord variant with *pas*, which shortens the distance between [iNEG] and the ultimately surviving [uNEG]. Additionally, a post-hoc analysis of the original dataset provided by Burnett et al. (2015) revealed that *nulle part* appeared in an embedded construction 72% of the time in the Montreal 84 corpus, which is much higher than *personne*, which was embedded only 31.7% of the time. Therefore, it is not surprising that *nulle part* has a higher concord rate in this dataset, because the proximity effect is sensitive to syntactic embedding, as expected by our analysis.

Rien 'nothing' is a DP that can appear in direct and indirect object position, and therefore we propose that when it appears in a structure with a simple finite verb, it also raises to SPEC NegP (58). This proposition aligns with Kayne (1998)'s observation: *rien* can overtly move to a higher position, as shown in examples (49), discussed earlier in this section.

(58) Je vois$_j$ [$_{NegP}$ rien$_i$ [$_{VP}$ t$_j$ t$_i$]]. ['I see nothing.']

Note that with participles and infinitives *rien* strongly prefers to raise overtly: *J'ai rien vu* is highly preferred to *J'ai vu rien*; however, we suggest that this raising is more likely to end in the adjoined position to VP, lower than the base position of *pas*, rather than directly to NegP. For example, negative concord constructions with *rien* show that *rien*'s landing position with participles (59a) and infinitives (59b) is still lower than NegP. Since *rien* raises more often to a position that is closer to the Op¬ with participles and infinitives, contrasted with *personne*, which stays in situ, the concord rate for *rien* (15%), which is lower than that for *personne* in Montreal French, is explained.

(59) a. J'ai [$_{NegP}$ pas$_i$ [$_{VP}$ t$_i$ rien$_j$ vu t$_j$]]. ['I saw nothing.']
b. Je veux [$_{NegP}$ pas$_i$ [$_{TP[-fin]}$ t$_i$ rien$_j$ voir t$_j$]].
'I don't want to see anything.'

Jamais '(n)ever' is an adverb that usually appears higher than the direct and indirect DPs. We propose that this item goes through a similar derivation to sentences with *pas* in the Canadian dialect: *jamais* is generated as a VP adverb, and it can either raise to SPEC NegP (60) or stay in its VP adjacent position and co-occur with *pas* in SPEC NegP (61). Due to its possible movement to NegP, its rate of concord is relatively low (1%).

(60) Le gouvernement a [$_{NegP}$ jamais$_i$ [$_{VP}$ t_i voulu rien faire]].
'The government never wanted to do anything.'

(61) Bah, je me suis [$_{NegP}$ pas [$_{VP}$ jamais attardé à la loi-cent-un]].
'Bah, I never paid attention to law 101.'
(Burnett et al. 2015, p. 13, from the Montréal 84 corpus. Derivations added.)

Finally, our analysis predicts that *aucun* should have a concord rate similar to *personne*, as *aucun* is a determiner; it does not raise overtly to Spec of NegP with participles or infinitives, shown in (62). However, Table 1 shows that *aucun* has a relatively low concord rate in the Montreal 84 corpus. This discrepancy could be attributed to social factors, as *aucun* tends to be produced by speakers with a high education level compared to other NC items, indicating its potential association with a high social prestige. In fact, the original dataset for the paper Burnett et al. (2015) shows that 49% of *aucun* tokens were produced by high education level speakers, whereas other NC items were produced less frequently by this group of speakers (e.g., *personne*: 34%, *nulle part*: 39%, *rien*: 34%, *jamais*: 39%). Furthermore, *aucun* appears rarely in an embedded construction (only 7%), and our analysis predicts an asymmetry of concord rate between embedded and unembedded cases. Since concord with *pas* is disfavored by high social prestige and unembedded structures, the low rate of doubling with *aucun* is expected.

(62) J'ai [$_{VP}$ vu [$_{DP}$ aucun livre sur la table]].
'I saw no books on the table.'

To summarize, we propose that the proximity effect is the product of various syntactic conditions, most of which have been independently argued for previously in the literature:[16]

[16]It is worth noting that there are other agreement-based proposals for the proximity effect on negative concord. For example, a recent analysis by Herburger (2023) suggests that in Romance languages, each NC item (or NC-term) bearing [uNEG] has a semantically negative [iNEG] homophonous counterpart. In Laurentian French, when a postverbal NC item is distant from the finite verb, the concord variant—where the NC item carries [uNEG] and the negative marker *pas* carries [iNEG]—is preferable. This is because the non-concord variant, with the homophonous [iNEG] counterpart of the NC item, would undergo quantifier raising and thus be sensitive to clausal or phrasal boundaries. Although these proposals differ significantly from ours, it would be interesting for future research that links negative concord with FTR to explore whether these alternative explanations for the proximity effect could also account for the polarity effect on FTR.

- We propose that the agreement between [iNEG] and [uNEG] is subject to "soft" locality constraints: in optimal structures, the [iNEG] on the negative operator agrees with [uNEG] in SPEC NegP.
- In cases where postverbal NC items are not in SPEC NegP overtly, the concord variant would be preferable for [NEG] feature agreement, as it permits *pas* to occupy Spec NegP. Therefore, (infinitival/prepositional/participial) embedded NC items favor negative concord with *pas* compared with unembedded ones.
- However, despite the concord variant being more favorable for *agree* in such situations, it necessitates an additional negative word, *pas*, which introduces a potential ambiguity between NC and DN readings. Consequently, the concord variant cannot always be selected, contributing to the overall low concord rate (11%) reported in the Montreal 84 corpus (Burnett et al. 2015).
- Like English (Kayne 1998), French postverbal negative elements can raise into SPEC NegP, especially if there are no clause/PP/participle boundaries.
- In Laurentian French, *pas* carries [uNEG] (Zeijlstra 2004) and [uQ]. It is base generated as an adjunct on VP (Rowlett 1998), and then moves up, ending up in the SPEC NegP position (Pollock 1989).

5.3 The polarity effect

We argue that adopting the proposals to analyze the proximity effect in the previous section immediately gives us an analysis of the polarity effect on FTR. In this section, we will first explain the polarity effect on FTR in Laurentian French. Next, we propose that the same explanation accounts for the preference for the synthetic future with NC items in Parisian French. We further argue that the differences in the polarity effect for negative contexts with *pas* in Laurentian and Parisian French stem from dialectal variations in the syntactic and semantic properties of *pas*. Specifically, *pas* carries [uNEG] in Laurentian French, but is semantically negative and lacks formal features in Parisian French.

5.3.1 Laurentian French

We begin by discussing the polarity effect in Laurential French. Recall that the simple future is favored with all NC items and *pas* in this dialect compared to the periphrastic future.

We start from the observation that the basic clause structure of the periphrastic future is different from the structure of the synthetic future. Building upon proposals put forth by Ruwet (1972), Lamiroy (1987), and Tellier (2015), it is established that the auxiliary *aller* in the periphrastic future operates as a raising verb with the following reasoning: firstly, it has been observed in various languages that motion verbs can evolve from indicating spatial motion, to acquiring aspectual functions, and finally tense-related functions; this is also the case for periphrastic future in French. Originally employed to denote movement towards a distant destination, the auxiliary *aller* has now embraced the role of an auxiliary denoting future tense. In this context, the accompanying infinitival complement specifies the action to be undertaken upon reaching the designated destination. Lamiroy (1987) discerns a differentiation

between the usage of *aller* as a tense-related auxiliary and its original function as a motion verb. When employed as an auxiliary, *aller* functions as a raising predicate, whereas its role as a motion verb entails acting as a control verb. This perspective resonates, in some respects, with the proposition presented by McCawley (1971), who also advocated for viewing tense as a raising predicate. Lamiroy (1987) further employed a set of linguistic tests to demonstrate the applicability of raising verb criteria to *aller* in its future tense auxiliary function. For instance, periphrastic future allows for the inclusion of expletives or idiomatic expressions in the subject position, as shown, respectively, in (63a) and (63b), which are important characteristics of raising verbs. Additionally, the clitic *en* can be integrated within the embedded predicate, as in example (63c), which involves another characteristic of raising predicates. However, these tests do not yield the same outcomes when *aller* is utilized as a motion verb, showing that the motion verb *aller* remains a control verb.

(63) a. Il va falloir partir bientôt.
b. Tort va être donné aux coupables.
c. La préface va en être publiée bientôt.
(Lamiroy 1987, p. 290)

Since *aller* of periphrastic future is a raising predicate, periphrastic future has a biclausal construction, in which the subject of the infinitive clause raises to the SPEC of the finite TP. The sentence with the simple future, on the other hand, is a monoclausal structure: the subject starts off in SPEC VP (Koopman and Sportiche 1991) and raises to SPEC TP. French being a verb-raising language, the finite verb also raises into the TP domain (Pollock 1989). The syntactic difference between the two future forms is illustrated in (64).

(64) a. Luc va gagner. [periphrastic future]
$[_{TP}$ Luc$_i$ va$_k$ $[_{VP}$ t$_k$ $[_{TP[-fin]}$ t$_i$ $[_{VP}$ t$_i$ gagner]]]]
b. Luc gagnera. [synthetic future]
$[_{TP}$ Luc$_i$ gagner$_j$-a $[_{VP}$ t$_i$ t$_j$]]
'Luc will win.'

Based on our proposals in the previous section, the derivation of sentences with future temporal reference and an NC item, like *personne* 'nobody,' involves the NC item raising to SPEC NegP from its base-generated position in VP. As shown in (65), in the periphrastic future, *personne* stays in the lower clause, where its agreement with Op¬ is (softly) disrupted by the infinitival clausal boundary. Things are much simpler with the simple future: *personne* faces no potential impediment to its raising into SPEC NegP to agree with Op¬. Likewise, when the NC item is *jamais* '(n)ever' (cf. (66)), in the periphrastic future, *jamais* must either stay in the lower clause, where it is far away from the negative operator and the *agree* relation would be *softly* blocked by the clausal boundary, or it raises into SPEC NegP, crossing a clausal boundary in doing so. Neither of these options are optimal. However, in the synthetic future, since *jamais* raises to SPEC NegP in the same clause and agrees with Op¬, no clausal boundary would be crossed in the simple future, and therefore no *soft* locality constraint would be violated. Consequently, negative adverbs, such as *jamais*, also prefer synthetic future over periphrastic future.

(65) a. Luc va aimer personne. *periphrastic future*

$[_{TP}$ Luc Op$\neg_{[iNEG,iQ]i}$-va $[_{NegP}$ t_i $[_{TP[-fin]}$ aimer$_j$ $[_{VP}$ t_j personne$_{[uNEG]}$]]]]]

$[_{TP}$ Luc $[$Op$\neg_{[iNEG,iQ]}$-aimer$_j]_i$-a $[_{NegP}$ personne$_{[uNEG]k}$ $[t_j]_i$ $[_{VP}$ t_j t_k]]]]

b. Luc aimera personne. *synthetic future*

$[_{TP}$ Luc $[$Op$\neg_{[iNEG,iQ]}$-aimer$_j]_i$-a $[_{NegP}$ personne$_{[uNEG]k}$ $[t_j]_i$ $[_{VP}$ t_j t_k]]]]

'Luc will like nobody.'

(66) a. Luc va jamais gagner. [periphrastic future]

$[_{TP}$ Luc Op$\neg_{[iNEG,iQ]i}$-va $[_{NegP}$ jamais$_{[uNEG]k}$ t_i $[_{TP[-fin]}$ gagner$_j$ $[_{VP}$ t_k t_j]]]]]]

b. Luc gagnera jamais. [synthetic future]

$[_{TP}$ Luc Op$\neg_{[iNEG,iQ]}$-gagner$_j]_i$-a $[_{NegP}$ jamais$_{[uNEG]k}$ $[t_j]_i$ $[_{VP}$ t_k t_j]]]]

'Luc will never win.'

Since *pas* carries an [uNEG] in Laurentian French, and it is base generated as an adjunct to VP in the lower TP (Rowlett 1998), the *agree* relation operates over infinite clausal boundary if it is in a periphrastic future construction. Therefore, speakers are predicted to have a preference for the synthetic future when *pas* appears.

5.3.2 Parisian French

We now turn to Parisian French. Recall that Parisan French does not allow negative concord with *pas* (so there is no proximity effect), and similarly *pas* is not subject to the polarity effect on FTR, whereas the other NC items (*personne, rien, jamais* etc.) are, as Liang et al. (2024)'s corpus studies show. To account for this state of affairs, we propose that Parisian French is identical (in the ways discussed in the paper) to Laurentian French, except for the syntactic properties of *pas*. Specifically, like in Laurentian French, NC items in Parisian French also carry a [uNEG] feature, which must be checked by the [iNEG] feature carried by the hidden operator Op$\neg_{[iNEG]}$. Consequently, the *agree* relation is subject to soft locality constraint imposed by the infinitival clausal boundary in periphrastic future constructions, leading to a preference for the synthetic future in negative contexts with NC items.

On the other hand, since *pas* does not participate in negative concord in Parisian French, where a co-occurrence of *pas* and an NC item result in a double negation reading, we follow Zeijlstra (2009) in proposing that *pas* is semantically negative and does not carry any formal negative feature that needs to be checked. As a result, *pas* in Parisian French is not subject to the "soft" locality effect caused by the infinitival clausal boundary of the periphrastic future constructions. Therefore, the periphrastic future is preferred in negative context with *pas*, as is the case in affirmative context.

6 Conclusion

In this paper, we argued that two constraints previously observed in the literature on syntactic variation in French are related: we proposed that both the *polarity effect* on future temporal reference in Laurentian and Parisian varieties (Wagner and

Sankoff 2011; Poplack and Dion 2009; Roberts 2012; Tristram 2020; Liang et al. 2024, among others), which has been a longstanding puzzle in variationist research, and the *proximity effect*, which characterizes negative concord in Laurentian French (Burnett et al. 2015; Burnett 2016), both derive from the syntactic feature specifications of negative elements in the French dialects that we studied. Previous research into the polarity effect on future temporal reference in Canadian French had never related the two patterns, which is understandable given that all negative elements behave the same way in this dialect. However, new results from quantitative studies of future temporal reference in Parisian French strongly suggest that the polarity effect is driven by interactions between the syntax of French future tenses and NC items. Our analysis shows that the observed dialectal difference can be reduced to minor variations in the syntactic and semantic properties of the negative marker *pas*.

More specifically, building on the agreement-based approach to negative concord (Zeijlstra 2004, 2008; Haegeman and Lohndal 2010), we propose that both constraints result from a "soft" locality constraint such that a negative element carrying [uNEG] prefers to be closer to NegP, where sits the hidden negative operator carrying [iNEG], without any intervening barriers, such as infinitival clausal boundaries. This proposal explains the preference pattern of synthetic future being favored with all negative contexts in spoken Laurentian French, where negative elements carrying [uNEG] do not have to cross the infinitival boundary posed by the periphrastic future to agree with [iNEG] hosted in NegP, and with NC items in spoken Parisian French, where the lack of preference of the synthetic future for *pas* is because the negative marker *pas* in this dialect is semantically negative, thus not carrying formal features that are subject to agree. Furthermore, this proposal also explains the proximity effect on negative concord in Laurentian varieties, where *pas* naturally participates in negative concord with NC items. Since both *pas* and NC items in Laurentian French carry [uNEG], and negative quantifiers tend to move out of VP to Spec NegP in Germanic and some Romance languages (Kayne 1998), we posit a general preference for the highest [uNEG] being closer to the negative operator [iNEG] situated in the NegP, without any intervening barriers, including infinitival and prepositional boundaries, again formulated as a "soft" locality constraint. This solves the preferential distribution of concord variant with *pas* with embedded NC items in Laurentian French, namely the proximity effect.

Building on previous formal research by scholars, such as Zeijlstra, Haegeman, Londahl, and Kayne, and based on results from quantitative investigation of variation phenomena, we incorporated the frequency contrasts observed into a formal syntactic analysis, but in order to do so, we had to introduce a new "soft" constraint into the system. We argued that this new locality constraint, operating at the preferential level, is a more specific version of the looser locality constraints characterizing negative concord constructions, which have long been known to operate at the grammaticality level. Our proposal therefore shows that syntactic constraints can be extended to explain and predict preferential patterns in variationist studies, and incorporating quantitative results into formal syntax can help to verify and refine syntactic theories, showing to what extent they are universal principles underlying various linguistic phenomena across languages. Our paper makes yet another contribution to the large and growing body of evidence that frequency patterns and grammaticality patterns

are not orthogonal, and that "soft" syntactic constraints, principles, operations, etc., should be included in a full theory of syntactic competence and performance.

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